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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,302	09/30/2003	Paul H. Shelley	BOEI-1-1211	8161
25315	7590	03/21/2006	EXAMINER	
BLACK LOWE & GRAHAM, PLLC 701 FIFTH AVENUE SUITE 4800 SEATTLE, WA 98104			GABOR, OTILIA	
			ART UNIT	PAPER NUMBER
			2884	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/676,302

Applicant(s)

SHELLEY ET AL.

Examiner

Otilia Gabor

Art Unit

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 1, 12, 23, 27, 40, 49 and 51 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-4, 10, 11, 13-21, 41-48, 50, 52 and 54-65 is/are allowed.
- 6) ☒ Claim(s) 5-9, 22 and 24 is/are rejected.
- 7) ☒ Claim(s) 25, 26 and 28-38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2006 is/are: a) ☒ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/05/06
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

***Response to Amendment***

1. The amendment filed 01/09/2006 has been entered.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 5-9 recite the limitation "the infrared spectrometer" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 from which all of the above claims depend does not contain an infrared spectrometer.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 22, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nikoonahad et al. (U. S. Patent 6,919,957).

Nikoonahad discloses a method for non-destructively determining multiple characteristics/properties of a composite substrate, the method comprising the steps of transmitting an infrared beam onto a sample composite; detecting the reflected infrared beam that is reflected from the substrate; determining the reflectance or absorbance of the sample from the detected reflected beam; correlating the value of the reflected infrared energy to the characteristics/properties that is sought to be determined.

Nikoonahad discloses the specific characteristics to be determined as critical dimensions, presence of defects, as well as presence of thin film coatings, and thus fails to specifically disclose the determination of the amount of heat exposure and amount of heat damage, however since he discloses that other characteristics/ properties besides the enumerated ones can be determined through this method, such as determining and controlling the sample exposure to heat, it would have been obvious that the general method disclosed by Nikoonahad can be used to determine the amount of heat and heat exposure, since he allows for correlation of the measured values to any property/characteristics of the substrate, and since by disclosing that exposure to

different temperatures creates different defects on the surface of the sample, which surface then reflects the radiation differently, it is obvious that by generating the different reflected infrared energies one can correlate the obtained energy with the amount of heat exposure of the sample (i.e., if the temperature needs to be controlled it means that the temperature exposure needs to be determined, and if the property of the surface changes with the amount of heat exposure, by determining the characteristic reflection one can correlate the reflected energy to the heat exposure).

Nikoonahad discloses that in determining the property characteristics of the composite substrate, a first as well as a second infrared reflectance or absorbance of the sample at beams of different wavenumbers are utilized, and that the property/characteristics of the composite is determined from the difference in the two values obtained.

Nikoonahad discloses using an infrared spectrometer, and that any number of optical elements positioned at any desired location can be used in the determination method. He discloses using filters, mirrors, beam splitters, etc. (see Col.38, lines 16-61, Col.41, lines 24-36, Col.48, lines 48-68).

Nikoonahad discloses determining the reflectance or absorbance of the sample by detecting the reflected beam of beams of multiple wavenumbers, where the second or third wavenumber represents increased or decreased reflectance or absorbance of the sample. Nikoonahad discloses an exemplary source that emits light with wavenumbers between  $5882\text{ cm}^{-1}$  and  $52631\text{ cm}^{-1}$  but allows for lower or higher

wavenumbers depending on the sample composition and property that sought to be determined (see Col.43, lines 8-26).

Nikoonahad discloses that the transmitting of the incident beam on the sample can be done at many different angles, and therefore it would have been obvious to transmit it parallel to the fibers of the sample, for an accurate reflection beam measurement. He also discloses that a reference reflectance spectrum can be used for a more accurate sample property determination (see Col.43, lines 46-55, Col.45, lines 30-41, Col.67, lines 29-48).

***Allowable Subject Matter***

8. Claims 2-4, 10, 11, 13-21, 41-48, 50, 52, 54-65 are allowed.
9. Claims 25, 26, 28-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter: The amendments made by the Applicant, namely to specify that the correlation between the infrared energy reflected and the heat exposure is done so that an increase in the infrared absorbance reflects exposure by the composite substrate to heat greater than 300 degrees F, or that the quantitative determination of the heat exposure is done by correlating the difference in the energy intensities obtained when the sample and a plurality of reference samples were exposed to various amounts of

heat, one of which is greater than 300 degrees F, render the claims allowable over the prior art cited.

### ***Response to Arguments***

11. Applicant's arguments filed 01/09/2006 have been fully considered but they are not persuasive. The argument regarding claim 22 is not persuasive because Nikoonahad discloses that the transmitting of the incident beam on the sample can be done at many different angles, and therefore it would have been obvious to transmit it parallel to the fibers of the sample, for an accurate reflection beam measurement. The fact that Nikoonahad does not limit the angle of irradiation it would have been obvious to use the angle that is most advantageous and appropriate for the type of measurement done. In this case, because surface characteristics are determined it is obvious to irradiate the substrate in a direction that is parallel to the fibers that form the substrate, for otherwise specular reflectance might occur, which introduces errors in the reflectance measurement.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otilia Gabor whose telephone number is 571-272-2435. The examiner can normally be reached on Monday-Friday between 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

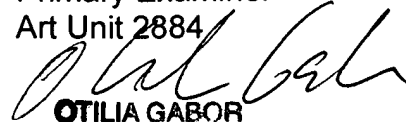


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Otilia Gabor  
Primary Examiner  
Art Unit 2884



**OTILIA GABOR**  
**PRIMARY EXAMINER**

**Amendments to the Drawings:**

Please substitute the attached new formal FIGURES 1-20 for the previously filed FIGURES 1-20, filed September 30, 2003.

accepted

OG

03-10-06

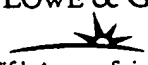
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